

# CHARLES BARTHOLOMEW ENGINEERING, INC.

AREA 217-359-2128

Soil and Foundation Engineering  
Construction Inspection  
Testing Services for Asphalt,  
Concrete and Construction Materials

April 16, 1987

Land and Lake Co.  
P.O. Box 778  
Park Ridge, Illinois 60068

Attn: Mr. Jim Ambroso

COPY

Re: 122nd St. Facility  
Chicago, Illinois  
CBE File 8735

Gentlemen:

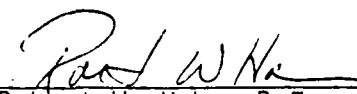
In accordance with your request and in compliance with IEPA regulations, Charles Bartholomew Engineering, Inc. certifies that it has tested a section of liner material for compaction and permeability. Two (2) field compaction tests were taken at the top of the first lift of what is designated as the Chippewa East Liner using nuclear density methods. The results of these compaction tests are attached along with the moisture-density relationship, ASTM D-1557, generated for the material tested.

In addition to the compaction tests, a permeability test was conducted on a sample of the liner material molded to a dry density of 104.6 PCF at a moisture content of 21.7%. This density corresponds with the lowest density obtained from the field compaction. U.S. Army Corps of Engineers Procedure EM-1110-2-1906, Consolidometer Method, was used to perform the permeability test. This is a falling head test with the sample confined in a consolidometer ring and subjected to a small vertical pressure to prevent swelling. A vertical pressure of 0.5 TSF was applied to the specimen and a permeability of  $2.1 \times 10^{-8}$  cm./sec. was obtained.

If there are any questions concerning this information or if we may be of any further service, please do not hesitate to call.

Sincerely,

CHARLES BARTHOLOMEW ENGINEERING, INC.

  
Robert W. Hahn, P.E.

EPA Region 5 Records Ctr.



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RWH:ba

Enclosures

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APR 24 1987

EPA-DC-PC

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# CHARLES BARTHOLOMEW ENGINEERING, INC.

AREA 217-359-2128

Soil and Foundation Engineering  
Construction Inspection  
Testing Services for Asphalt,  
Concrete and Construction Materials

MAIL: BOX 3153, CHAMPAIGN, ILLINOIS 61821

LAB: 820 PIONEER STREET, CHAMPAIGN, ILLINOIS

To: Land and Lakes Co.  
P.O. Box 778  
Park Ridge, Illinois 60068

Project: 122nd St. Facility  
Chicago, Illinois  
CBE File 8735

## REPORT OF FIELD COMPACTION

Date April 6, 1987

Test No.	1	2
Location	Chippewa East Liner East Boundary	Chippewa East Liner East Boundary

Depth or Elev.	1st. Lift	1st. Lift
Soil Type	Gray silty clay few pebbles	Gray silty clay few pebbles
Control Dry Density, pcf	120.1	120.1
Optimum Water Content	14.6	14.6
Test Dry Density, pcf	110.4	104.6
Test Water Content	19.8	21.7
Percent Compaction	91.9	87.1

Remarks:

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APR 24 1987  
IEPA-DLPC

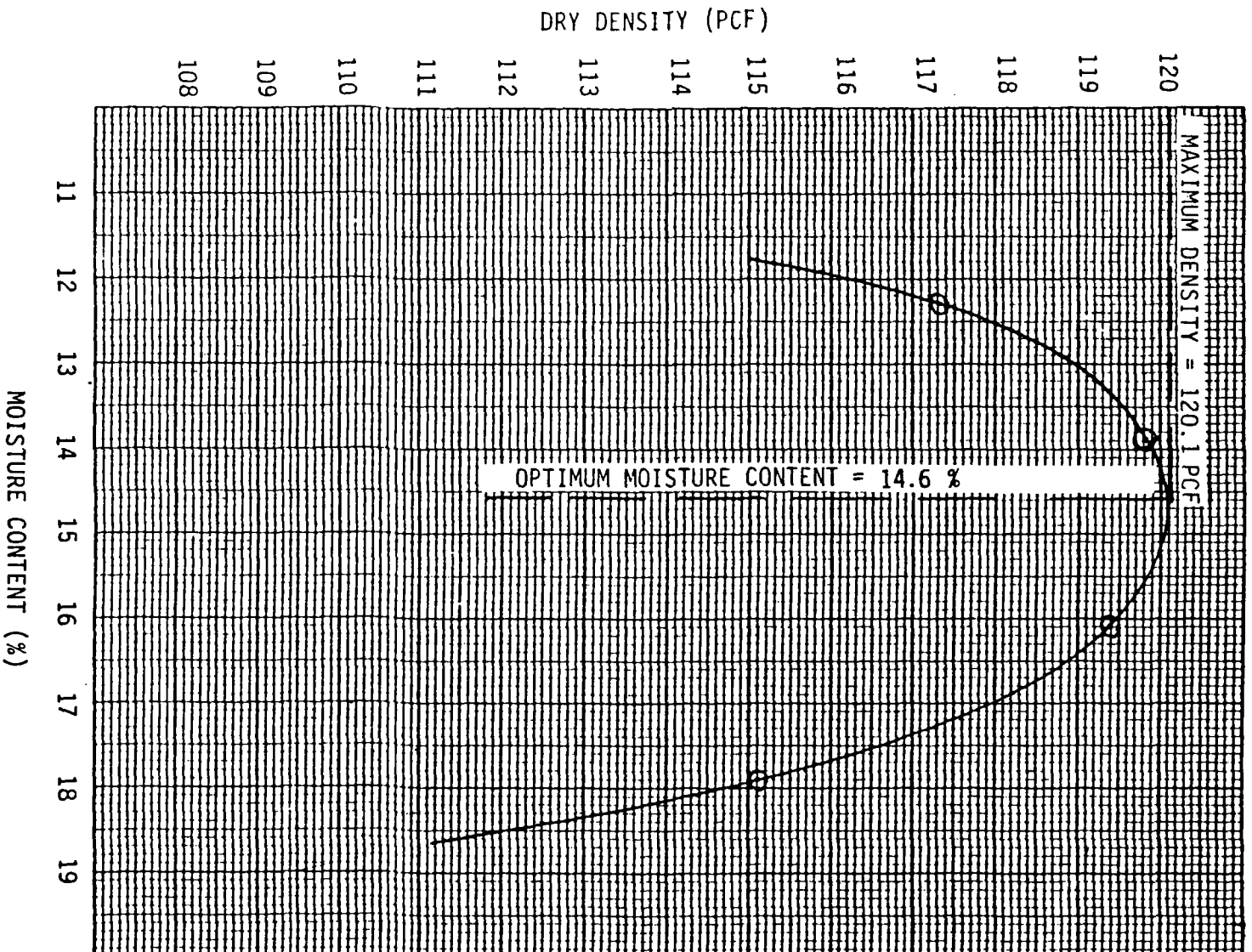
Date of Report: April 16, 1987

Inspector: Robert W. Hahn, P.E.

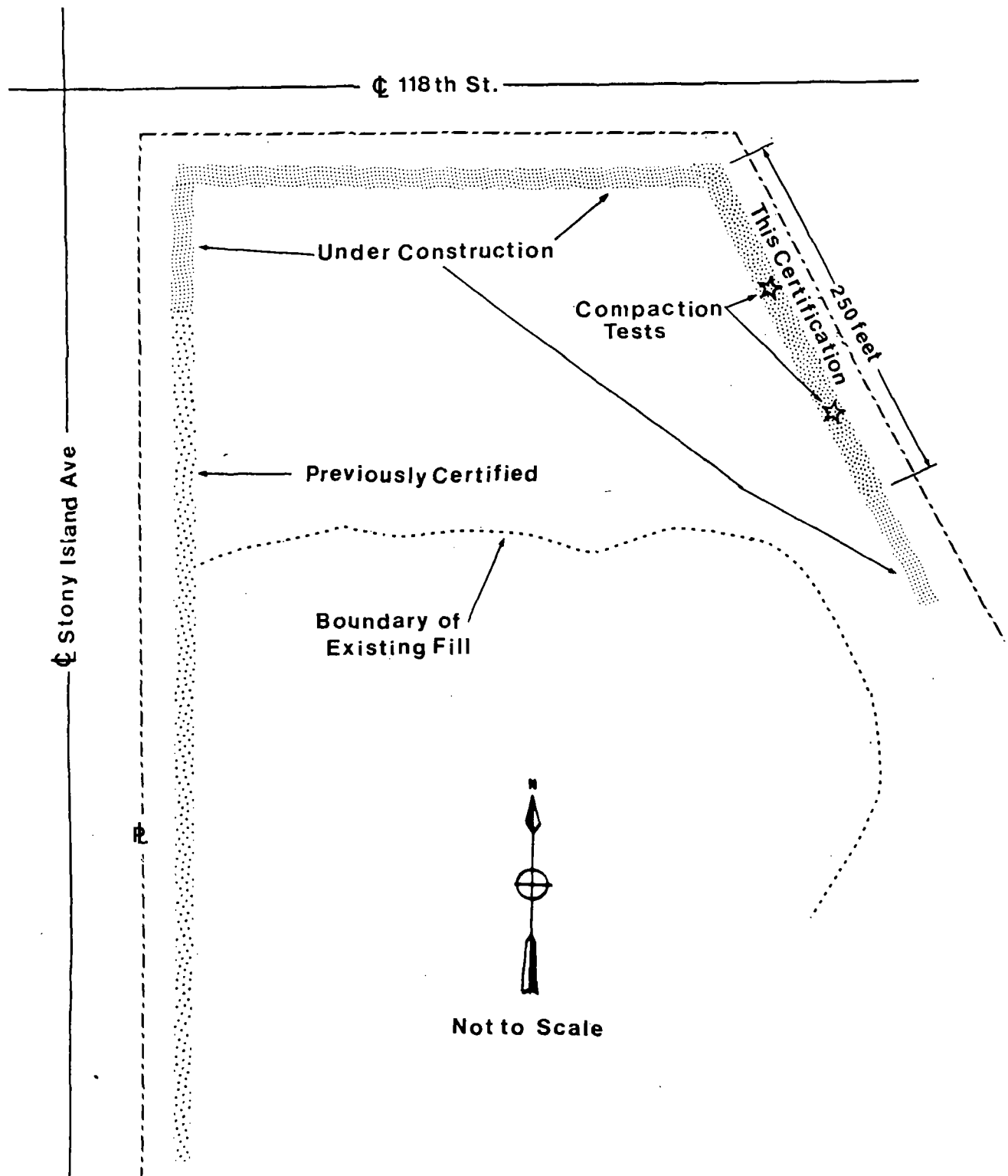
Soils Engineer:

*Robert W. Hahn*

Material: Gray silty CLAY (CL)



Moisture-Density Relationship ASTM D-1557		CBE		Sampled from: Chippewa East Liner	
PROJECT NAME	Land and Lakes Co. 122nd Street Facility	PROJECT NO.	CBE-8735	DATE	April 16, 1987



LAND AND LAKES CO.	CLARK ENGINEERING SERVICE	
122d & Stony Island	date: 4-24-87	rev.
Liner Certification	approved	page of